

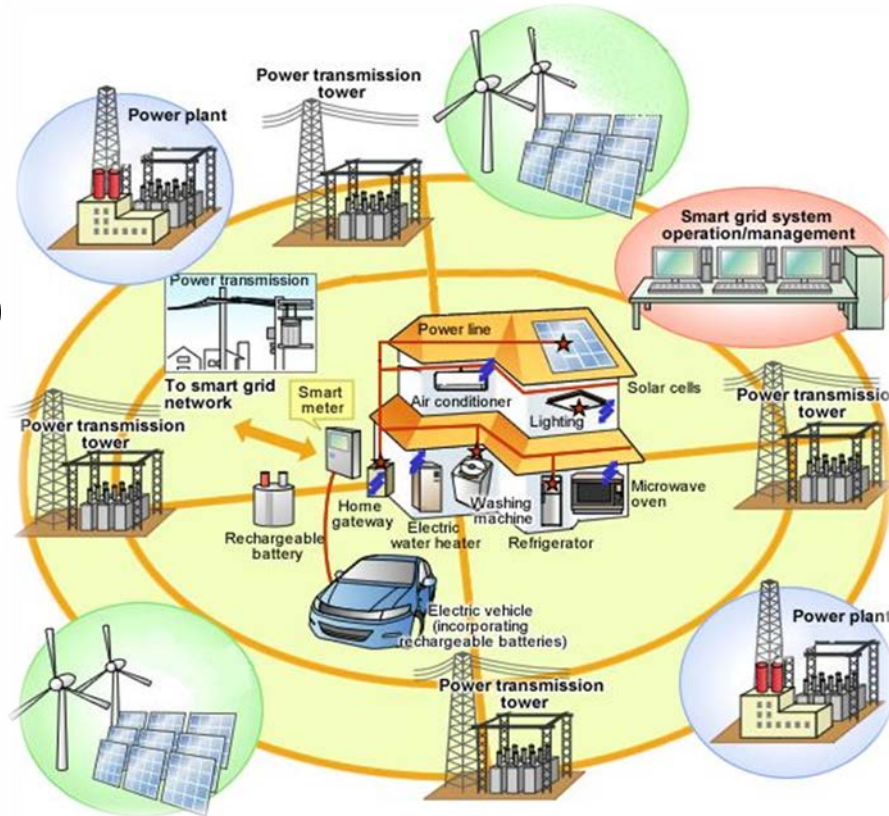


California Energy Commission Research and Development Division Major Research Programs

- Electric Program Investment Charge (EPIC)
 - Approximately \$120 M/year
- Natural Gas RD&D
 - Approximately \$21 M/year
- Special Funds (e.g., climate vulnerability, transportation research)

Policy Drives Innovation

- Increase RPS to 50% by 2030
- Reduce GHG to 40% below 1990 levels by 2030
- 1.3 GW of storage by 2020

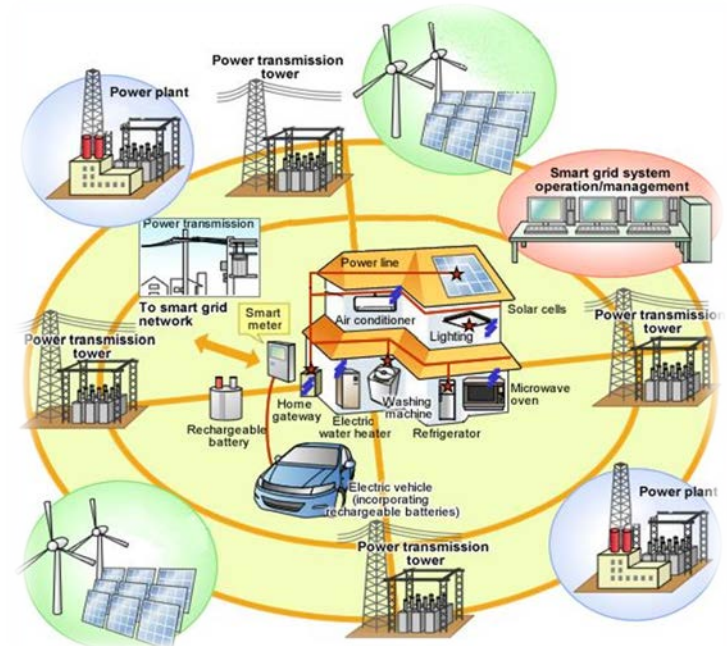


- Double energy efficiency savings by 50%
- 1.5 million ZEVs by 2025
- Increase access to clean energy in disadvantaged communities



EPIC Initiatives—Investment Plans

- **Applied Research**
 - Energy Efficiency
 - Clean Generation
 - Smart Grid
 - Cost Share for Federal Awards
- **Technology Demonstration and Deployment**
 - Energy Efficiency and Demand Response
 - Clean Energy Generation and Deployment
 - Integration of EE, DR, DG and Smart Grid
 - Cost Share for Federal Awards
- **Market Facilitation**
 - Regulatory Assistance
 - Workforce Development
 - Supporting Entrepreneurs

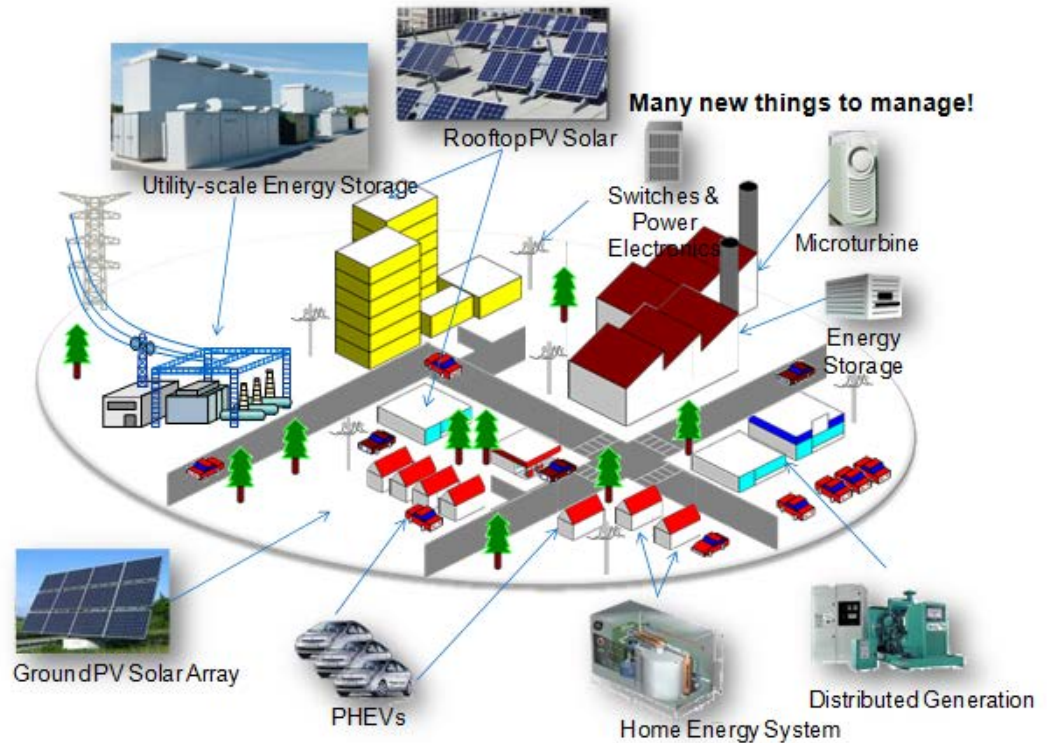


More info at:
www.energy.ca.gov/research/epic/index.html



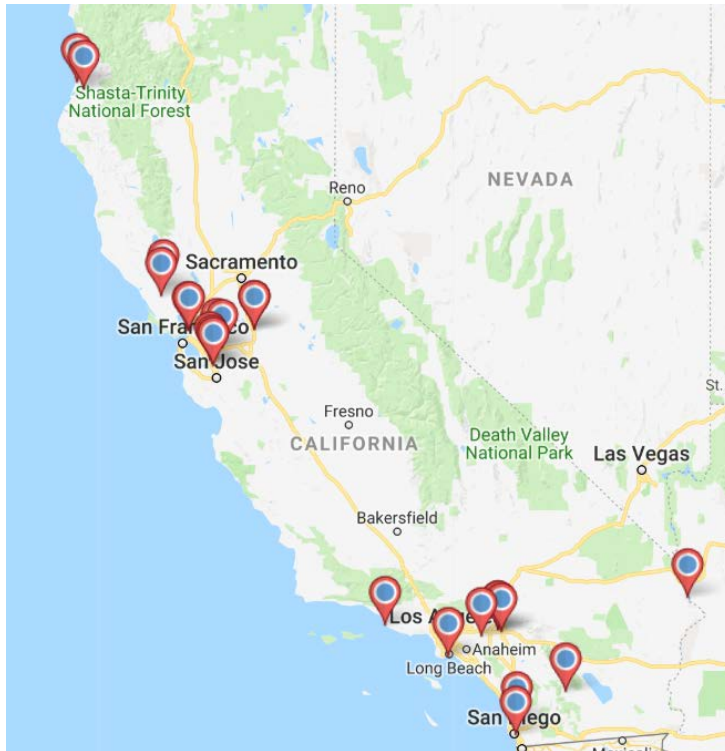
What is a Microgrid?

- Small-scale power grid
- Grouping of interconnected loads and distributed energy resources
- Can operate in island mode or grid-connected if desired
- Can connect and disconnect from the grid if desired
- Acts as a single controllable entity to the grid



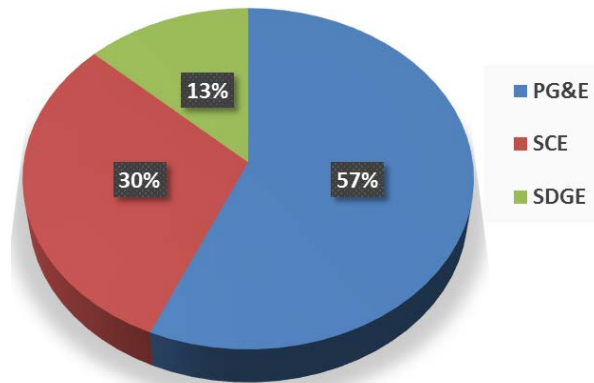


EPIC Microgrid Projects



- 17 microgrid projects with total of 23 sites.
- \$75.6 million Energy Commission fund and \$71.4 million match fund.
- All the projects are located in the CA IOU territories. 57% project sites are within PG&E.

Distribution of EPIC microgrids in CA IOUs





Value of Using a Microgrid

- Reliability / Resiliency
- Energy Independence
- Cost Savings
- Environmental (greening of the grid)
- Demonstration/Test and Evaluation



Open Discussion

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